faces and the incision bore such characteristic traces of meteoric iron as to show that the mass was not the work of man. A layer of oxide formed a thin covering of the iron; it was 67 mm. high, 67 mm. broad, and 47 mm. at its thickest part; it was found to be about as hard as steel, and besides carbon it contained a small percentage of nickel. It resembled the meteoric masses of St. Catherine in Brazil, and Braunau in Bohemia, found in 1847.

The evidence, however, is so strong that what we really obtain now at the earth's surface forms but a very small portion of the meteorites which enter the upper air, that it would not be probable that in former ages of the earth's history, when the atmosphere was denser than it is now, anything whatever would be left by the time the surface was reached.

J. NORMAN LOCKYER.

SCIENTIFIC SERIALS.

American Journal of Science, January.—Measurement of the Peruvian arc, by E. D. Preston. In this paper, which was read before the American Association for the Advancement of Science at Toronto, August 1889, the author reviews the whole question of the relative lengths of the earth's axes, dealing in detail with Bouguer's expedition to Peru in 1735, and arguing that the amplitude of his Peruvian arc may be in error by many seconds. Hence he contends that the geodetic science of to-day demands the remeasurement of this arc.—Neutralization of induction, by John Trowbridge and Samuel Sheldon. A system of neutralization for inductive disturbances is here described, which might be adopted where it is impossible to employ entire metallic circuits in which the earth plays no part.—Divergent evolution and the Darwinian theory, by Rev. John T. Gulick. The author discusses Darwin's apparently contradictory views on the causes of natural selection on the one hand, and on the other on the causes of diversity of natural selection. He concludes that, though Darwin has not recognized segregation as a necessary condition of divergence of species, he has indicated one process (geographical or local separation under different environments) by which segregation is produced in nature, adding, however, that this is not the only cause of segregation and consequent divergence.—The Devonian system of North and South Devonshire, by H. S. Williams. During a recent visit to England the author studied this system both on the spot and in the geological collections in London and elsewhere. He dwells especially, (1) on the close resemblance of the English Devonian species to those of the New York Devonian, though mostly passing under different names, and (2) on the character of the North and South Devonian rocks, which in appearance, composition, and order are as different as two distinct systems well can be.—The zinciferous clays of South-West Missouri, and a theory as to the growth of the calamine of that section, by W. H. Seamon. Full analyses are given of the so-called "tallow" and "joint" clays occurring associated and sometimes intermixed in every calamine digging in South-West Missouri. These analyses show a large percentage, often from 50 to 56, of zinc oxide, and it is inferred that at one time all the massive calamine probably existed in "tallow clays" precipitated from solutions.—On the spectrum of ζ Ursæ Majoris, by Edward C. Pickering.—Origin of normal faults, by T. Mellard Reade. Some critical remarks are offered on Prof. Le Conte's recent explanation of the origin of normal faults, which is not new, and presents many insuperable difficulties.—Papers were submitted by J. Dawson Hawkins, on a specimen of minium from Leadville; by William P. Blake, on some minerals from Arizona; by F. A. Genth, on a new occurrence of corundum in Patrick County, Virginia; by Alfred C. Lane, on the estimation of the optical angle of observations in parallel light; by L. G. Eakins, on a new stone meteorite from Texas; by Edward S. Dana, on the barium sulphate from Perkin's Mill, Templeton, Province of Quebec; and by O. C. Marsh, on some new Dinosaurian reptiles recently discovered in Wyoming, Colorado, and Dakota.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, January 9.—"A Milk Dentition in *Orycteropus*." By Oldfield Thomas, Natural History Museum. Communicated by Dr. A. Günther, F.R.S.

Of the few Mammalia in which no trace of a milk dentition has been found, *Orycteropus*, the Aard-Vark, has always occupied a prominent place, owing partly to the peculiar structure of its prominent teeth, and partly to its very doubtful systematic position.

An opportunity has now fallen in my way of proving that it has after all two sets of teeth, those of the first, or milk set, being rudimentary, and probably quite functionless, but nevertheless so far developed as to be all completely calcified, and to be for the most part readily distinguishable by form and position from those of the second or permanent set.

Among the collections in the Natural History Museum there are two very young females of *Orycteropus afer* in spirit, presented by Sir Richard Owen, and it is in these that the milk teeth now to be described occur. The larger of the two measures 18 inches in total length, and the smaller 14 inches.

Each of these specimens has a complete, although rudimentary, set of milk teeth, extending the whole length of the maxillary bones above, and along a rather shorter portion of the mandible below. None, however, are observable in the premaxillæ, or in the corresponding anterior part of the mandibles. The teeth are all quite minute, and it is doubtful whether they would ever have cut the gum.

In the upper jaw there appear to be normally no less than seven milk teeth. Of these the most posterior is by far the largest, has a rudimentary crown, and two distinct roots, anterior and posterior. The others are simple and styliform.

In the lower jaw there are four milk teeth only, of which, again, the most posterior is more or less molariform.

As to the structure of the milk teeth, a horizontal section of the last upper one, ground down in the dry state, presents numerous large openings which are obviously the sockets into which pulp-papillæ have extended, so that the milk teeth show a commencement of the remarkable histological structure characteristic of the permanent teeth.

But important as a knowledge of the presence of a milk dentition in *Orycteropus* is, it does not at present render any easier the difficult questions as to the phylogeny and systematic position of that animal. Although called an Edendate, it has always been recognized as possessing many characters exceedingly different from those of the typical American members of the order.[1] It has in fact been placed with them rather on account of the inconvenience of forming a special order for its reception than because of its real relationship to them. Now, as they are either altogether toothless or else homodont and monophyodont (apart from the remarkable exception of *Tatusia*), it seems more than ever incorrect to unite with them the solitary member of the *Tubulidentata*, toothed, heterodont, and diphyodont, and differing from them in addition by its placentation, the anatomy of its reproductive organs, the minute structure of its teeth, and the general characters of its skeleton.

But if *Orycteropus* is not genetically a near relation of the Edendates, we are wholly in the dark as to what other Mammals it is allied to, and I think it would be premature to hazard a guess on the subject. Whether even it has any special connection with *Manis* is a point about which there is the greatest doubt, and, unfortunately, we are as yet absolutely without any palæontological knowledge of the extinct allies of either. *Macrotherium* even, usually supposed from the structure of its phalangeal bones to be related to *Manis*, has lately proved (see Osborn, *American Naturalist*, vol. xxii. p. 728, 1882) to have the teeth and vertebræ of a Perissodactyle Ungulate, and one could not dare to suggest that the ancestors of *Manis* or *Orycteropus* were to be sought in that direction. Lastly, as the numerous fossil American Edentates do not show the slightest tendency to an approximation towards the Old World forms, we are furnished with an additional reason for insisting on the radical distinctness of the latter, whose phylogeny must therefore remain for the present one of the many unsolved zoological problems.

Physical Society, January 17.—Prof. W. G. Adams, Vice-President, in the chair.—Owing to the unavoidable absence of Mr. F. B. Hawes, his paper on a carbon deposit in a Blake telephone transmitter was postponed.—Dr. S. P. Thompson made a communication on electric splashes, and illustrated his subject by beautiful experiments on the production of Lichtenberg's figures. The author has recently investigated these phenomena as modified by varying the conditions under which the figures are obtained, and has arrived at the following conclusions: (1) the nature of the dielectric plate does not change the character of the figures produced, and (2) the nature of the powders used seems to have no material effect on their shape. In the course of his experiments he has found a mixture of sublimed sulphur and lycopodium to give better figures than the red lead and sulphur usually employed, and also that a large and highly polished knob is advantageous, particularly when the Leyden jar is charged negatively. Sometimes when obtaining negative figures, nebulous patches occur, and these were attributed to the so-called electric winds sent off from roughnesses on the knob when not sufficiently well polished. If instead of bringing the knob in contact with the plate, it is only brought near to it, then a peculiar figure closely resembling a "splash" results. A positive splash consists of short lines radiating from the point of approach, whilst a negative splash is made up of more or less rounded spots which become elongated in a radial direction as their distance from the centre of the splash increases. Negative splashes are, however, much more difficult to produce than positive ones. When viewed in the dark, the discharge producing the splash is seen to consist of a bundle of small sparks which branch outwards on approaching the plate. In conclusion the author remarked that roughnesses on a conductor produced more electric winds when the conductor is charged negatively than when positively charged, and invited the opinions of members as to the causes of the differences observed between positive and negative electricity. Prof. Rücker said he had recently obtained figures produced by discharges on photographic plates. Generally he observed that negative discharges produce roundish patches, whilst positive ones give more filamentary figures. On passing a spark across a glass plate covered with lampblack, its trace was found to have a black core at one end, whilst the other was quite clear. He also made remarks on the distinctive character of the positive and negative discharges in partial *vacuo*, and considered investigations as to the causes of such differences to be of great importance. Prof. Adams thought any attempt to discover the causes of such differences as those noted in the paper was to be commended, for the well-known fact that it is more difficult to insulate a negative charge than a positive one has long needed an explanation.—A paper on galvanometers, by Prof. W. E. Ayrton, F.R.S., T. Mather, and W. E. Sumpner, was read by Prof. Ayrton. In fitting up the Physical Laboratories of the Central Institution of the City and Guilds of London Institute, the authors have had occasion to obtain galvanometers of various types and patterns, some of which have been made to special designs, and specimens of instruments embodying recent improvements were exhibited at the meeting. The question as to whether fairly sensitive galvanometers should be astatic or non-astatic was answered in favour of the former system, from the fact of its being less affected by external magnetic disturbances, and the greater ease with which great sensibility may be obtained. The usual method of placing the mirror inside the coil was shown to be undesirable, and in the newer forms of instruments Mudford's improvement of placing the mirror outside the coils has been adopted; the space near the axis of the coil being nearly filled with wire. It was also shown that if wire be wound in a certain approximately spheroidal space near the magnets, then these convolutions will tend to oppose the more distant portions of the coil; however, by winding the two parts in opposite directions they conspire to deflect the magnet. Details as to methods of supporting the coils were then discussed, and the importance of fitting them in boxes mounted on hinges or otherwise, so as to be readily removable, was pointed out. A galvanometer devised for teaching purposes, and provided with variable damping arrangements was described, in which the damping is effected by enclosing the mirror in a glass cell whose sides can be caused to approach or recede by turning a milled head outside the instrument. This arrangement enables the damping to be varied between wide limits, and its effect on the swing produced by a given discharge can be determined. The instrument is also serviceable both as an ordinary damped galvanometer, or as a fairly ballistic one. In measuring quantities of electricity by the first swing of a galvanometer needle, a correction has usually to be introduced for damping; this correcting factor is simple enough when the damping is small, but becomes more complicated as the damping increases, and to facilitate the calculations a table of values of the factor for various values of λ (the logarithmic decrement) has been calculated. From this it appears that, for values of λ less than 0·5, the value of the factor is very nearly $(1 + \frac{1}{2}\lambda)$, the correction usually employed. Improvements in methods of insulating the coils and terminals of galvanometers required for insulation tests were next described, the principle of which may be gathered from Figs. 107 and 108 in Prof. Ayrton's "Practical Electricity." A special form of instrument for high insulation work was exhibited, in which the copper resistance of the coils is nearly 400,000 ohms, and the shortest path along which surface leakage can take place from the coils to the base of the instrument is between 30 and 40 inches of ebonite artificially dried by sulphuric acid. This is attained by supporting the coils from two corrugated ebonite rods which depend from a brass ring carried on the top of three corrugated pillars fixed to the base plate. The instrument was constructed to drawing and specification by Messrs. Nalder Brothers, but the method of supporting the coils was suggested by Messrs. Eidsforth and Mudford. With reference to the proportionality of deflection to current in reflecting galvanometers, it was pointed out that ordinary instruments may differ as much as 2 per cent. within the limits of the scale, hence showing the necessity for calibration when any approach to accuracy is desired. Galvanometers of the D'Arsonval type sometimes differ from proportionality quite as much as the one above referred to, but by fitting such instruments with curved pole pieces, and allowing the coil to hang freely from the top suspension, a proportionality true to less than 0·15 per cent. has been attained over a scale about 30 inches long. Coming to the question of sensitiveness, the importance of keeping the wire as close as possible to the magnets was brought prominently forward, as well as the necessity of reducing the "figures of merit" of various instruments to the same standard, in comparing their sensibilities. The standard adopted as most convenient and closely approximating to practical usage is arrived at by supposing the distance of the mirror from the scale to be equal to 2000 scale divisions, and the sensibilities for current and quantity are given as *scale divisions per micro-ampere*, and *scale divisions per micro-coulomb* respectively. The period of oscillation is also taken into account. A table showing the resistances, sensibilities, coefficients of self-induction and volumes of the coils of various instruments, together with the relations existing between them, accompanies the paper, and from this it appears that in the best astatic double coil instruments, of from 10,000 to 30,000 ohms resistance, the number of scale divisions per micro-ampere may reach 400 times the resistance to the $\frac{2}{5}$th power ($400\ R^{\frac{2}{5}}$) when the period is 10 seconds. In obtaining data of various instruments the authors have consulted, amongst others, Prof. Threlfall's paper on the measurement of high specific resistances, in the *Phil. Mag.* for December 1889, and noticed two serious errors. The first of these makes an instrument constructed according to Messrs. Gray's pattern nine times less sensitive than it actually was, whilst the sensibility of a form recommended in the paper is given seventeen times too great. On account of the lateness of the hour, the discussion was adjourned till February 6, before which time it is hoped that a fairly full abstract will appear in the technical papers.

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[1] On this subject see especially Flower, "On the Mutual Affinities of the Animals composing the Order Edentata," Zool. Soc. Proc., 1882, p. 358 *et seqq*

Geological Society, January 8.—W. T. Blanford, F.R.S., President, in the chair.—The following communications were read:—On some British Jurassic fish-remains referable to the genera *Eurycormus* and *Hypsocormus*, by A. Smith Woodward. Hitherto our knowledge of the Upper Jurassic fish fauna has been mainly derived from specimens found in fine lithographic stones, where the various elements are in a state of extreme compression. Within the last few years remains of similar fish have been discovered in the Oxford and Kimeridge Clays of England, and these are of value for precise determination of certain skeletal features in the genera to which they belong. The author described *Eurycormus grandis* from the Kimeridge Clay of Ely, a large species which makes known for the first time the form and proportions of several of the head-bones in this genus. A technical description of all the bones the characters of which are distinguishable was given, and the author concluded that there is considerable similarity between the head of *Eurycormus* and the recent Ganoid *Amia*, even to minute points of detail. He further described *Hypsocormus tenuirostris* and *H. Leedsii* from the Oxford Clay of the neighbourhood of Peterborough, the osteology of this genus not having as yet been elucidated. Portions of the jaws have been discovered, affording valuable information as to the form and dentition of the principal elements. These jaws are not precisely paralleled by any other Jurassic genus, though they possess a resemblance to *Pachycormus*, as also to the Upper Cretaceous genus, *Protosphyræna*. The President remarked that *Amia* is a freshwater genus, and inquired whether the fossil fish was freshwater or marine. Mr. E. T. Newton remarked upon the great interest and importance of the paper. The author, in reply to the President's question, said that the old Ganoids were marine, and it was only in more recent times that they had become restricted to fresh water.—On the Pebidian volcanic series of St. David's, by Prof. C. Lloyd Morgan. After a brief sketch of the principal theories that have been propounded, the author concluded that our knowledge of this series has not yet reached "a satisfactory position of stable equilibrium." His own communication was divided into three sections. *The Relation of Pebidian to Cambrian:* There are four localities where the junction is described—Caerbwdy Valley, St. Non's Bay, Ogof Golchfa, and Ramsey Sound. The stratigraphy of the second of these was given with much detail, and illustrated. The author concluded that here, together with clear signs of local or contemporaneous erosion, the general parallelism of the strike of Pebidian and Cambrian is most marked. There is no evidence of any bending round of the conglomerate against the strike of the Pebidians. The stratigraphical evidence in each of the localities having been considered, together with the evidence offered by the materials of the Cambrian conglomerate and local interstratification with the volcanic beds (the interdigitation at Carnarwig being well marked), he concluded that there was no great break between the conglomerate and the underlying Pebidians. The uppermost Pebidian already foreshadowed the sedimentary conditions of the Harlech strata, and the change emphasized by the conglomerate was one that followed volcanic conditions after no great lapse of time. Hence the relation of the Pebidian to the Cambrian is that of a volcanic series, for the most part submarine, to succeeding sedimentary strata—these strata being introduced by a conglomerate formed in the main of foreign pebbles borne onward by a current which swept the surface of, and eroded channels in the volcanic tuffs and other deposits. He was disposed to retain the name Pebidian as a volcanic series in the base of the Cambrian system. *The Pebidian Succession:* With the exception of some cinder-beds, which appear to be subaërial, the whole series was accumulated under water. There is no justification for making separate subdivisions; the series consists of alternating beds of tuff of varying colour and basicity, the prevailing tints being dark green, red-grey, and light sea-green. In the upper beds there is an increasing amount of sedimentary material, and more rounded pebbles are found. Basic lava-flows occur, for the most part, in the upper beds. Detailed work, laid down on the 6-inch Ordnance map, appears to establish a series of three folds—a northern anticline, a central syncline, and a southern anticline—folded over to form an isocline, with reversed dips to the south-east. The axis of folding is roughly parallel to the axis of St. David's promontory. The total thickness is from 1200 to 1500 feet. The author devoted a considerable number of pages to further details concerning this series of deposits. He failed to find the alleged Cambrian overlap. "The probabilities are that it is by step-faults brtween Rhoson and Porth Sele, and not by overlap, that the displacement of the conglomerate has there been effected." Also at Ogof Gôch it does not rest upon the quartz-felsite breccia and sheets (group C, of Dr. Hicks), but is faulted against them. A section was devoted to the felsitic dykes, and it was suggested that they may be volcanic dykes of Cambrian age. *The Relation of the Pebidian to the Dimetian:* The author has not been able to satisfy himself of the existence of the Arvonian as a separate and distinct system. He notes the junction of Pebidian and Dimetian in Porthlisky Bay and the Allen Valley at Porth Clais, at neither of which places are there satisfactory evidences of intrusion. At Ogof Llesugn the intrusive character of the Dimetian was strongly impressed upon him. He criticized the mapping of Dr. Hicks, and pointed out the difficulties which present themselves in the way of mapping the Dimetian ridge as pre-Cambrian. He pointed out that not a single pebble of Dimetian rock, such as those now lying on the beach in Porthlisky Bay, is to be found in the conglomerate. He concluded that the Dimetian is intrusive in the southern limb of the isocline, and that there are no Archæan rocks *in situ*. After the reading of this paper there was a discussion, in which the President, Dr. Hicks, Prof. Blake, Prof. Hughes, and Mr. Williams took part.

SYDNEY.

Royal Society of New South Wales, November 6, 1889.—Monthly meeting.—Prof. Liversidge, F.R.S., President, in the chair.—The Chairman announced the death of the Rev. J. E. Tenison-Woods, who had been an honorary member of the Society since 1875.—The following papers were read:—Aids to the sanitation of unsewered districts, poudrette factories, by Dr. J. Ashburton Thompson.—Notes on Goulburn lime, by E. C. Manfred.—Notes on some minerals, &c., by John C. H. Mingaye.

December 4.—Monthly Meeting.—Prof. Liversidge, F.R.S., President, in the chair.—The following papers were read:—Well and river waters of New South Wales, by W. A. Dixon.—The Australian aborigines, by Rev. John Mathew.

PARIS.

Academy of Sciences, January 20.—M. Hermite in the chair.—On the various states of the carbon graphites, and on the chemical derivatives corresponding to them, by MM. Berthelot and P. Petit. The graphites, when oxidized by the wet process at a low temperature, form ternary compounds, one of whose terms has been discovered by Brodie. But M. Berthelot has since shown that there exist several chemically distinct graphites, each forming a particular graphitic oxide, which yields a corresponding hydrographitic and pyrographitic oxide, and which may be recovered with all their primitive properties. These various graphites and the series of corresponding compounds have been studied, first by their composition and behaviour, and in a second memoir by the measurement of the heats of combustion and formation.—Remarks on the formation of the nitrates in plants, by M. Berthelot. The author points out that the facts established by Haeckel and Lundström, taken in connection with his own observations, tend to show an affinity between the microbes present in the soil and those developed in the plant. This applies to the microbes which fix the nitrogen of vegetable humus and the leguminous plants, as well as to those which similarly form the nitrates in amaranthus, sterculia, the coffee shrub and vegetable humus.—Note on a fundamental point of the theory of polyhedrons, by M. de Jonquières. The paper deals with Euler's famous formula $S + H = A + 2$, and shows that it is applicable, and intended by Euler to be applicable, to all polyhedrons without exception, and not restricted to any particular class, as supposed by Legendre, Cauchy, and others.—Ephemerides for the search of the periodical comet of d'Arrest on its return in 1890, by M. Gustave Leveau. Having previously obtained the elements for the years 1870, 1877, and 1883, by allowing for the disturbing influence of Jupiter, Saturn, and Mars, M. Leveau here supplies those for 1890 (February 25, mean Paris time) by studying the disturbing effects produced by Jupiter in the interval between 1883 and 1890.—Observations of Swift's comet made at the Observatory of Nice with the 0·38 m. equatorial, by M. D. Eginitis.—On the solar statistics for the year 1889, by M. Rud. Wolf. From the solar observations made at Zurich and the magnetic observations recorded at Milan, the author has constructed a table of monthly means showing that both the relative numbers and the magnetic variations have continued to diminish during 1890. But he thinks that the retrograde movement will soon cease, and that we probably entered the minimum period towards the end of last year.—On the theory of the figure of the planets, by M. M. Hamy. An attempt is here made to realize theoretically the conditions of a system answering to M. Poincaré's remarkable theorem published in the *Comptes rendus* for June 1888.—On the integration of an equation with partial derivatives, by M. Zaremba. The paper deals with an equation of the form

$$\frac{d^2x}{dxdy} + \phi_1(x+y)\left(\frac{dz}{dx} + \frac{dz}{dy}\right) + \phi_2(x+y)z = 0,$$

where ϕ_1 and ϕ_2 are two functions whatsoever of $x + y$, and shows that the determination of the general integration may be reduced to the integration of an ordinary linear differential equation of the second order, and to quadratures.—On the variation of the resistance of bismuth in the magnetic field, by M. A. Leduc. The author here continues his studies of the electric resistance of bismuth as affected by varying temperature.—Calculation of the compressibility of nitrogen up to 3000 atmospheres, by M. Ch. Antoine. The results of fresh calculations are here summed up in a table resuming all the data relative to the pressure of nitrogen up to a pressure of 3000 atmospheres.—On the combinations of the metals of the alkalies with ammonia, by M. H. W. Bakhuis Roozeboom. An explanation is offered of the curious phenomena mentioned by M. Joannis in his recent communication (*Comptes rendus*, cix. p. 900) on the combinations of potassium and sodium with ammonia.—On the absorption of the ultra-violet rays by some organic substances belonging to the fatty series, by MM. J. L. Soret and Alb. A. Rilliet. These studies, which to a large extent confirm the conclusions of Messrs. Hartley and Huntington (Philosophical Transactions of the Royal Society, 1879), show in a general way that the measurement of the absorption of the ultra-violet rays constitutes a delicate means of estimating the purity of organic substances.—On the refracting powers of double salts in solution, by M. E. Doumer. These researches have been carried on by the same method which enabled the author to determine the refracting powers of simple salts. The results, which are here tabulated, show that the molecular refracting power of a double salt is equal to the sum of the molecular refracting powers of the constituent simple salts; and in general, the molecular refracting power of any salt, simple or double, is proportional to the number of valences of the metallic part of the salt.—Papers were read by M. Ph. A. Guye, on the molecular constitution of bodies at the critical point; by M. Raoul Varet, on the reactions between the salts of copper and the metallic cyanides; by MM. C. Chabrié and L. Lapicque, on the physiological action of selenious acid; and by M. L. de Launay, on the geology of the island of Lesbos. M. de Launay considers the volcanic eruptions of this island as comparatively recent, possibly not older than the Pliocene epoch, and doubtless contemporary with the disturbances resulting in the creation of the Ægean Sea in a region previously forming a vast marshy plain with shallow lakes.

DIARY OF SOCIETIES.

LONDON.

THURSDAY, JANUARY 30.

ROYAL SOCIETY, at 4.30.—Investigations into the Effects of Training Walls in an Estuary like the Mersey: L. F. Vernon Harcourt.—On Outlying Nerve-Cells in the Mammalian Spinal Cord: C. S. Sherrington.—On the Germination of the Seed of the Castor-oil Plant (Ricinus communis): Prof. J. R. Green.

ROYAL INSTITUTION, at 3.—Sculpture in Relation to the Age: Edwin Roscoe Mullins.

FRIDAY, JANUARY 31.

ROYAL INSTITUTION, at 9.—Smokeless Explosives: Sir Frederick Abel, C.B., F.R.S.

SATURDAY, FEBRUARY 1.

ESSEX FIELD CLUB, at 7.—Annual General Meeting.—Migration of Birds: E. A. Fitch, President.

ROYAL INSTITUTION, at 3.—The Natural History of the Horse, and of its Extinct and Existing Allies: Prof. Flower, C.B., F.R.S.

SUNDAY, FEBRUARY 2.

SUNDAY LECTURE SOCIETY, at 4.—The Health of the Mind; and Mental Contagions: Dr. B. W. Richardson, F.R.S.

MONDAY, FEBRUARY 3.

SOCIETY OF ARTS, at 8.—The Electromagnet: Dr. Silvanus P. Thompson.

SOCIETY OF CHEMICAL INDUSTRY, at 8.—On the Properties and Applications of Metallic Compounds of the Phenols: A. H. Allen and W. W. Staveley.

ARISTOTELIAN SOCIETY, at 8.—The Conception of Sovereignty: D. G. Ritchie.

ROYAL INSTITUTION, at 5.—General Monthly Meeting.

TUESDAY, FEBRUARY 4.

ZOOLOGICAL SOCIETY, at 4.—On the Morphology of a Reptilian Bird (Opisthocomus cristatus): W. K. Parker, F.R.S.—Observations on Wolves, Jackals, Dogs, and Foxes: A. D. Bartlett.—A Synopsis of the Genera of the Family Soricidæ: G. E. Dobson, F.R.S.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Bars at the Mouths of Tidal Estuaries: W. H. Wheeler.

ROYAL INSTITUTION, at 3.—The Post-Darwinian Period: Prof. G. J. Romanes, F.R.S

WEDNESDAY, FEBRUARY 5.

GEOLOGICAL SOCIETY, at 8.—The Variolitic Rocks of Mount Genèvre: G. A. J. Cole and J. W. Gregory.—The Propylites of the Western Isles of Scotland and their Relation to the Andesites and Diorites of the same District: Prof. J. W. Judd, F.R.S.

ENTOMOLOGICAL SOCIETY, at 7.—On the Peculiarities of the Terminal Segment in some Male Hemiptera: Dr. Sharp.—The Lepidoptera of Burmah: Colonel Chas. Swinhoe.—On the Phylogenetic Significance of the Wing-Markings in certain Genera of Nymphalidæ: Dr. F. A. Dixey.

SOCIETY OF ARTS, at 8.—High-Speed Knitting and Weaving without Weft: Arthur Paget.

UNIVERSITY COLLEGE CHEMICAL AND PHYSICAL SOCIETY, at 4.30.—The Life and Work of Faraday: S. B. Schryver.

THURSDAY, FEBRUARY 6.

ROYAL SOCIETY, at 4.30.

LINNEAN SOCIETY, at 8.—On the Stamens and Setæ of Scirpeæ: C. B. Clarke, F.R.S.—On the Flora of Patagonia: John Ball, F.R.S.

CHEMICAL SOCIETY, at 8.—Ballot for the Election of Fellows.—The Oxides of Nitrogen: Prof. Ramsay, F.R.S.—Studies on the Constitution of Tri-Derivatives of Naphthalene: Dr. Armstrong and W. P. Wynne.—On the Action of Chromium Oxychloride on Nitrobenzole: G. G. Henderson and J. Morrow Campbell.

ROYAL INSTITUTION, at 3.—Sculpture in Relation to the Age: Edwin Roscoe Mullins.

FRIDAY, FEBRUARY 7.

PHYSICAL SOCIETY, at 5.—Annual General Meeting.—On Galvanometers: Prof. W. E. Ayrton, F.R.S., T. Mather, and W. E. Sumpner.—On a Carbon Deposit in a Blake Telephone Transmitter: F. B. Hawes.

GEOLOGISTS' ASSOCIATION, at 7.30.—Annual General Meeting.—Notes on the Nature of the Geological Record: The President.

SOCIETY OF ARTS, at 5.—The Utility of Forests and the Study of Forestry: Dr. Schlich.

INSTITUTION OF CIVIL ENGINEERS, at 7.30.—Reclamation of Land on the River Tees: Colin P. Fowler.

ROYAL INSTITUTION, at 9.—The London Stage in Elizabeth's Reign: Henry B. Wheatley.

SATURDAY, FEBRUARY 8.

ROYAL BOTANIC SOCIETY, at 3.45.

ROYAL INSTITUTION, at 3.—The Natural History of the Horse, and of its Extinct and Existing Allies: Prof. Flower, C.B., F.R.S.

CONTENTS.

PAGE

The Hyderabad Chloroform Commission 289
Hygiene 290
In the High Alps. By T. G. B. 291
The Story of Chemistry 292
Luminous Organisms. By Prof. W. A. Herdman . 293

Our Book Shelf:—

Meldola: "The Chemistry of Photography" 293
Smith: "The Popular Works of Johann Gottlieb Fichte" 294
Young: "Travels in France" 294

Letters to the Editor:—

Acquired Characters and Congenital Variation.—**The Duke of Argyll, F.R.S.** 294
Multiple Resonance obtained in Hertz's Vibrators.—**Prof. Geo. Fras. Fitzgerald; Fred. T. Trouton** 295
Bourdon's Pressure-Gauge. (*Illustrated.*)—**Prof. A. M. Worthington** 296
Foreign Substances attached to Crabs.—**Alfred O. Walker; Captain David Wilson-Barker** . . . 297
Thought and Breathing.—**R. Barrett Pope** 297
On the Effect of Oil on Disturbed Water.—**A. B. Basset, F.R.S.** 297
Luminous Clouds.—**T. W. Backhouse; Joseph John Murphy** 297
The Meteorite of Mighei.—**J. Rutherford Hill** . . 298
Achlya.—**Prof. Marcus M. Hartog** 298
The Parallelogram of Forces.—**Prof. A. G. Greenhill, F.R.S.** 298
Foot-Pounds.—**A. S. E.** 298
Chiff-Chaff singing in September.—**F. M. Burton** . 298
East Africa and its Big Game. (*Illustrated.*) 298
The Coral Reefs of the Java Sea and its Vicinity. By Dr. H. B. Guppy 300
The Electric Light at the British Museum 301
Notes 301

Our Astronomical Column:—

Objects for the Spectroscope.—**A. Fowler** 304
The Total Eclipse of January 1, 1889 305
The Orbits of the Companions of Brooks' Comet (1889 V., July 6) 305
Greenwich Observatory 305
The Physical and Chemical Characteristics of Meteorites as throwing Light upon their Past History. (*Illustrated.*) **By J. Norman Lockyer, F.R.S.** 305
Scientific Serials 309
Societies and Academies 309
Diary of Societies 312